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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/763,727

01/23/2004

Minggao Yao

12553/127

7335

25693

7590

10/11/2006

KENYON & KENYON LLP  
RIVERPARK TOWERS, SUITE 600  
333 W. SAN CARLOS ST.  
SAN JOSE, CA 95110

EXAMINER

RENNER, CRAIG A

ART UNIT

PAPER NUMBER

2627

DATE MAILED: 10/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/763,727

Applicant(s)

YAO ET AL.

Examiner

Craig A. Renner

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 10-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 03 October 2006 has been entered.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 10,13-16 and 19-21 are rejected under 35 U.S.C. 102(a) as being anticipated by Shiraishi et al. (JP 2002-074870).

With respect to claims 10 and 13-15, Shiraishi et al. (JP 2002-074870) teach an actuator component (52) comprising at least one layer of electrically-conductive material (includes lower-most 61, for instance); and at least one layer of electrically-insulative material (includes at least one layer of 60 above lower-most 61, for instance), wherein

the conductive material and the insulative material are to be applied to an actuator finger (52a, for instance) one layer upon another in an alternating manner (as shown in FIG. 6, for instance); and the layer of insulative material is wider than the layer of conductive material (as shown in FIGS. 5-6, for instance, i.e., the insulative material completely covers the conductive material) such that an insulative layer, applied to the actuator finger and sandwiching a conductive layer between the insulative layer and the actuator finger (as shown in FIG. 5 relative to FIG. 6, for instance), at least partially encloses and electrically isolates the conductive layer latitudinal to the actuator finger (as shown in FIGS. 5-6, for instance) [as per claim 10]; wherein the insulative material is a piezoelectric ceramic material (paragraph [0055], for instance) [as per claim 13]; wherein the insulative material is lead zirconate titanate (paragraph [0055], for instance) [as per claim 14]; and wherein the actuator finger is a hard disk (10) drive micro-actuator finger (52a, for instance) [as per claim 15]. As the claims are directed to an "actuator component", per se, the method limitations appearing in lines 4-5 of claim 10, for instance, can only be accorded weight to the extent that they affect the structure of the completed "actuator component". Note that "[d]etermination of patentability in 'product-by-process' claims is based on product itself, even though such claims are limited and defined by process [i.e., "applied to an actuator finger one layer upon another in an alternating manner", for instance], and thus product in such claim is unpatentable if it is the same as, or obvious form, product of prior art, even if prior product was made by a different process", *In re Thorpe, et al.*, 227 USPQ 964 (CAFC 1985). Furthermore, note that a "[p]roduct-by-process claim, although reciting subject

matter of claim in terms of how it is made [i.e., "applied to an actuator finger one layer upon another in an alternating manner", for instance], is still product claim; it is patentability of product claimed and not recited process steps that must be established, in spite of fact that claim may recite only process limitations", *In re Hirao and Sato*, 190 USPQ 685 (CCPA 1976). In this instance, the structure of the completed "actuator component" as claimed would be no different than the structure of the "actuator component" taught by Shiraishi et al. (JP 2002-074870).

With respect to claims 16 and 19-21, Shiraishi et al. (JP 2002-074870) teach a piezoelectric actuator (52) comprising an actuator finger (52a, for instance) to receive application of at least one layer of electrically-conductive material (includes lower-most 61, for instance) and at least one layer of electrically-insulative material (includes at least one layer of 60 above lower-most 61, for instance), the application being one layer upon another in an alternating manner (as shown in FIG. 6, for instance), wherein the layer of insulative material is wider than the layer of conductive material (as shown in FIGS. 5-6, for instance, i.e., the insulative material completely covers the conductive material) such that an insulative layer, applied to the actuator finger and sandwiching a conductive layer between the insulative layer and the actuator finger (as shown in FIG. 5 relative to FIG. 6, for instance), at least partially encloses and electrically isolates the conductive layer latitudinal to the actuator finger (as shown in FIGS. 5-6, for instance) [as per claim 16]; wherein the insulative material is a piezoelectric ceramic material (paragraph [0055], for instance) [as per claim 19]; wherein the insulative material is lead zirconate titanate (paragraph [0055], for instance) [as per claim 20]; and wherein the

Art Unit: 2627

actuator finger is a hard disk (10) drive micro-actuator finger (52a, for instance) [as per claim 21]. As the claims are directed to an "piezoelectric actuator", per se, the method limitations appearing in lines 2-4 of claim 16, for instance, can only be accorded weight to the extent that they affect the structure of the completed "piezoelectric actuator".

Note that "[d]etermination of patentability in 'product-by-process' claims is based on product itself, even though such claims are limited and defined by process [i.e., "receive application... one layer upon another in an alternating manner", for instance], and thus product in such claim is unpatentable if it is the same as, or obvious form, product of prior art, even if prior product was made by a different process." See *In re Thorpe, et al.*, supra. Furthermore, note that a "[p]roduct-by-process claim, although reciting subject matter of claim in terms of how it is made [i.e., "receive application... one layer upon another in an alternating manner", for instance], is still product claim; it is patentability of product claimed and not recited process steps that must be established, in spite of fact that claim may recite only process limitations." See *In re Hirao and Sato*, supra. In this instance, the structure of the completed "piezoelectric actuator" as claimed would be no different than the structure of the "piezoelectric actuator" taught by Shiraishi et al. (JP 2002-074870).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 11-12 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiraishi et al. (JP 2002-074870).

Shiraishi et al. (JP 2002-074870) teach the component/actuator as detailed in paragraph 3, supra. Shiraishi et al. (JP 2002-074870), however, remain silent as to the conductive material being a "metal," as per claims 11 and 17, selected from the group "consisting of Gold, Platinum, and Copper," as per claims 12 and 18.

Official notice is taken of the fact that metal selected from the group consisting of gold, platinum and copper is a notoriously old and well known conductive material in the art in the same field of endeavor. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the conductive material of Shiraishi et al. (JP 2002-074870) be a metal selected from the group consisting of gold, platinum and copper. The rationale is as follows:

One of ordinary skill in the art would have been motivated to have had the conductive material of Shiraishi et al. (JP 2002-074870) be a metal selected from the group consisting of gold, platinum and copper since such is a notoriously old and well known conductive material in the art in the same field of endeavor, and since selecting a known material on the basis of its suitability for the intended use is within the level of ordinary skill in the art, *In re Leshin*, 125 USPQ 416 (CCPA 1960).

***Pertinent Prior Art***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. This includes O'Neill (US 2002/0097663), which teaches an actuator component comprising at least one layer of electrically-conductive material and at least one layer of electrically-insulative material wherein the conductive material and the insulative material are to be applied to an actuator finger one layer upon another in an alternating manner and the layer of insulative material is wider than the layer of conductive material such that an insulative layer, applied to the actuator finger and sandwiching a conductive layer between the insulative layer and the actuator finger, at least partially encloses and electrically isolates the conductive layer latitudinal to the actuator finger.

***Response to Arguments***

7. Applicant's arguments filed 03 October 2006 have been fully considered but they are not persuasive.

The applicant argues "Shiraishi does not teach, suggest or describe at least '[a]n actuator component comprising: at least one layer of electrically-conductive material; and at least one layer of electrically-insulative material ... sandwiching a conductive layer between said insulative layer and said actuator finger..." (e.g., as described in claim 10)." This argument, however, is not found to be persuasive because of the following: Firstly, the "actuator finger" is never positively set forth in independent claim 10, i.e., "to be applied to an actuator finger" is not a positive recitation of structure, but



merely an intention of use. Nevertheless, Shiraishi et al. (JP 2002-074870) does teach an actuator component comprising at least one layer of electrically-conductive material (includes lower-most 61, for instance); and at least one layer of electrically-insulative material (includes at least one layer of 60 above lower-most 61, for instance) sandwiching a conductive layer (includes lower-most 61, for instance) between the insulative layer (includes layer of 60 above lower-most 61, for instance) and an actuator finger (52a, for instance, as shown in FIG. 5 relative to FIG. 6, for instance, i.e., when 52b (shown in FIGS. 5 and 6) is placed on the actuator finger (52a, as shown in FIG. 5), a conductive layer will be sandwiched between an insulative layer and the actuator finger). Additionally, it should be noted that the claims do not preclude other layers (62, for instance) from also being sandwiched between the insulative layer and the actuator finger.

The applicant also questions whether element “61” is indeed “conductive material” and whether element “60” is indeed “insulative material”. In paragraph [0051] of Shiraishi et al. (JP 2002-074870), element “61” is disclosed as a signal-electrode layer. Signal-electrode layers are made of conductive material. In paragraph [0052] of Shiraishi et al. (JP 2002-074870), element “60” is disclosed as being PZT. PZT is insulative material.

### ***Conclusion***

8. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the

Art Unit: 2627

grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

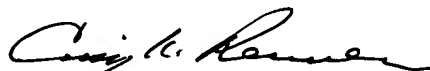
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig A. Renner whose telephone number is (571) 272-7580. The examiner can normally be reached on Monday-Tuesday & Thursday-Friday 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2627

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Craig A. Renner  
Primary Examiner  
Art Unit 2627

CAR